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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,551	08/30/2000	David J. McElroy	303.615US1	1374

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EXAMINER

LUU, THANH X

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 02/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Appli cation No.

09/650,551

Applicant(s)

MCELROY ET AL.

Examiner

Thanh X Luu

Art Unit

2878

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-21 and 28-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-21 and 28-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 12, 2002 has been entered.

Claims 7-21 and 28-38 are currently pending.

Claim Objections

2. Claim 38 is objected to because of the following informalities:

Examiner believes Applicant intended to claim --a second variable-gain amplifier responsive to the second aggregate image signal from the other summer--.

Appropriate correction is required.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 7, 10, 16, 29, 31 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Yukawa et al. (U.S. Patent 6,219,468).

Regarding claims 7, 10, 16, 29, 31 and 35, Yukawa et al. disclose (see Figures 1, 7 and 12) an imaging system, comprising: a first group pixel comprising two or more photodetectors (1) for providing two or more corresponding pixel image signals; a second group pixel comprising two or more photodetectors (2) for providing two or more corresponding pixel image signals, or two or more group pixels each comprising photodetection means (1, 2) for providing two or more corresponding pixel image signals; a summer (21; see Figure 7) responsive to the two or more of the corresponding pixel image signals for outputting an aggregate image signal (see also column 14, lines 30-35); a variable-gain amplifier (10) responsive to the aggregate image signal for outputting an amplified aggregate image signal based on an adjustable amplifier gain; and an automatic gain controller (8 and microcomputer) for adjusting the adjustable amplifier gain based on the aggregate image signal. Since the

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photodetectors are in an array, the photodetectors of Yukawa et al. are inherently accessed by an address line and a signal line.

6. Claims 7, 10, 16 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Dautriche (U.S. Patent 6,184,752).

Regarding claims 7, 10, 16 and 38, Dautriche discloses (see Figure 5) an imaging system, comprising: a first group pixel comprising two or more photodetectors (A, C) for providing two or more corresponding pixel image signals; a second group pixel comprising two or more photodetectors (B, D) for providing two or more corresponding pixel image signals, or two or more group pixels each comprising photodetection means (A-D) for providing two or more corresponding pixel image signals; a summer (see column 1, lines 25-30) responsive to the two or more of the corresponding pixel image signals for outputting an aggregate image signal; a variable-gain amplifier (31, 32) responsive to the aggregate image signal for outputting an amplified aggregate image signal based on an adjustable amplifier gain; and an automatic gain controller (125) for adjusting the adjustable amplifier gain based on the aggregate image signal. Dautriche further discloses (see Figure 5) another summer (see column 1, lines 25-30) responsive to two or more of the corresponding pixel image signals from the second group pixel (B, D) for outputting a second aggregate image signal; a first variable gain amplifier (31) responsive to the aggregate signal from the summer, a first automatic gain controller (41, 51, 61, 125) for adjusting the first variable gain amplifier gain based on the first amplified aggregate image signal; a second variable gain amplifier (32) responsive to the second aggregate image signal from the

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other summer, and a second automatic gain controller (42, 52, 62, 125) for outputting the second variable gain amplifier gain based on the second amplified aggregate image signal.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8, 9, 11, 12, 17, 18, 28, 30 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Yukawa et al. or Dautriche.

Regarding claims 8, 9, 11, 12, 17 and 18, Yukawa et al. or Dautriche disclose the claimed invention as set forth above. Yukawa et al. and Dautriche do not specifically disclose a digital summer or amplifier. However, it is notoriously well known in the art that digital signals and digital processing is more robust than analog signals and processing. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a digital summer or amplifier in the apparatus of Yukawa et al. or Dautriche to provide signals that are more resilient to noise and thereby improve detection.

Regarding claims 28, 30 and 34, Yukawa et al. or Dautriche disclose the claimed invention as set forth above. Yukawa et al. and Dautriche do not specifically disclose the specific wavelength of light detected by the first group pixel. However, choosing a specific wavelength or color of light to detect is a matter of design choice. It would have

been obvious to a person of ordinary skill in the art at the time the invention was made to have the first group pixel detect substantially the same color of light in the apparatus of Yukawa et al. or Dautriche to provide uniform and consistent detection.

9. Claims 13-15, 19-21, 32, 33, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yukawa et al. in view of Clark et al. (U.S. Patent 6,133,563).

Regarding claims 13, 19, 33 and 37, Yukawa et al. disclose (see Figures 1, 7 and 12) an imaging system, comprising: two or more group pixels each comprising photodetector circuits (1, 2) for providing two or more corresponding pixel image signals; a summer (21; see Figure 7) responsive to the two or more of the corresponding pixel image signals for outputting an aggregate image signal (see also column 14, lines 30-35); a variable-gain amplifier (10) responsive to the aggregate image signal for outputting an amplified aggregate image signal based on an adjustable amplifier gain; and an automatic gain controller (8 and microcomputer) for adjusting the adjustable amplifier gain based on the aggregate image signal. Since the photodetectors are in an array, the photodetectors of Yukawa et al. are inherently accessed by an address line and a signal line. Yukawa et al. do not specifically disclose the structure of the photodetector circuit as claimed. Clark et al. teach (see Figure 1) conventional photodetector circuits comprise a source-follower transistor (16) having a gate, source and drain; a ground node; and a photodiode (12) coupled between the gate, transistor and ground. The specific size of the circuit is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such a circuit in the apparatus of Yukawa et al.

in view of Clark et al. to enable quick readout and provide increased resolution in the detection.

Regarding claims 14, 15, 20 and 21, Yukawa et al. in view of Clark et al. disclose the claimed invention as set forth above. Yukawa et al. and Clark et al. do not specifically disclose a digital summer or amplifier. However, it is notoriously well known in the art that digital signals and digital processing is more robust than analog signals and processing. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a digital summer or amplifier in the apparatus of Yukawa et al. in view of Clark et al. to provide signals that are more resilient to noise and thereby improve detection.

Regarding claims 32 and 36, Yukawa et al. in view of Clark et al. disclose the claimed invention as set forth above. Yukawa et al. and Clark et al. do not specifically disclose the specific wavelength of light detected by the first group pixel. However, choosing a specific wavelength or color of light to detect is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the first group pixel detect substantially the same color of light in the apparatus of Yukawa et al. in view of Clark et al. to provide uniform and consistent detection.

Response to Arguments

10. Applicant's arguments with respect to claims 7-21 and 28-38 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
February 20, 2003



Thanh X. Luu
Patent Examiner